

WHAT IS CLAIMED IS:

1. A nicked cutting rule, comprising:

a shank portion having two substantially parallel shank side surfaces extending in a direction of length of the rule separated by a thickness of the shank portion;

a V-shaped cutting edge portion defined by two cutting edge portion surfaces that intersect at ends remote from the shank portion to define a cutting edge, the cutting edge portion having portions separated in the direction of length of the rule by a plurality of notches extending inwardly from the cutting edge toward the shank portion;

an intermediate portion between and integral with the shank portion and the cutting edge portion, the intermediate portion being thinner than the thickness of the shank portion and including two intermediate portion surfaces extending between the two shank side surfaces and the two cutting edge portion surfaces;

wherein the thickness of the shank portion is from about 0.178 to 2.13 mm, the shank portion has a hardness between about 280 and 450 HV, and the cutting edge portion has a hardness between about 480 to 720 HV.

2. The nicked cutting rule as set forth in claim 1, wherein the shank portion has a thickness of about 0.71 mm and a hardness about 380 HV, the cutting edge portion has a hardness about 640 HV and the nicked cutting rule is bendable to 150° at a radius of 0.35 mm.

3. The nicked cutting rule as set forth in claim 1 wherein the shank portion has a thickness of from about 0.178 to about 0.710 mm.

4. The nicked cutting rule as set forth in claim 1 wherein the shank portion has a thickness of from about 1.05 mm.

5. The nicked cutting rule as set forth in claim 1 wherein the shank portion has a thickness of from about 1.42 to about 2.13 mm.
6. The nicked cutting rule as set forth in claim 1, wherein at least one of the cutting edge portion and the intermediate portion have shaved surfaces.
7. The nicked cutting rule as set forth in claim 1, wherein the cutting edge portion has ground surfaces.
8. The nicked cutting rule as set forth in claim 1, wherein distances between at least two pairs of succeeding notches are different.
9. The nicked cutting rule as set forth in claim 1, wherein the shank portion has a lower hardness at a surface of the shank portion than at a center of the shank portion.
10. A nicked cutting rule, comprising:
 - a shank portion having two substantially parallel shank side surfaces extending in a direction of length of the rule separated by a thickness of the shank portion;
 - a V-shaped cutting edge portion defined by two cutting edge portion surfaces that intersect at ends remote from the shank portion to define a cutting edge, the cutting edge portion having portions separated in the direction of length of the rule by a plurality of notches extending inwardly from the cutting edge toward the shank portion;
 - an intermediate portion between and integral with the shank portion and the cutting edge portion, the intermediate portion being thinner than the thickness of the shank portion and including two intermediate portion surfaces extending between the two shank side surfaces and the two cutting edge portion surfaces;

wherein a hardness of the shank portion, a hardness of the cutting edge portion, the thickness of the shank portion, and the thicknesses of the intermediate portion and the cutting edge portion are selected such that the nicked cutting rule is bendable to 150° at a radius of 0.35 mm.

11. A process for producing a nicked cutting rule, comprising:
 - subjecting a hot rolled strip to decarburization annealing;
 - cold rolling the strip to a thickness of about 0.71 mm;
 - subjecting the cold rolled strip to hardening and tempering so that the strip has a hardness between about 280 and 450 HV;
 - slitting the hardened and tempered strip to form one or more rules of a desired height;
 - processing an edge of a rule to form a V-shaped cutting edge portion having two surfaces that intersect to form a cutting edge, an unprocessed shank portion having two substantially parallel surfaces separated by a shank thickness, and an intermediate portion between the cutting edge portion and the shank portion having two surfaces connecting the two surfaces of the cutting edge portion and the two surfaces of the shank portion, the intermediate portion being thinner than the shank thickness;
 - edge hardening the cutting edge portion to a hardness between about 480 to 720 HV; and
 - providing a plurality of notches extending inwardly from the cutting edge toward the shank portion in the cutting edge portion to define a nicked cutting rule wherein portions of the cutting edge are separated in the direction of length of the rule by the notches.

12. The process as set forth in claim 11, wherein at least one of the surfaces of the cutting edge portion and the surfaces of the intermediate portion are processed by shaving.

13. The process as set forth in claim 12, wherein the surfaces of the cutting edge portion are processed by grinding.

14. The process as set forth in claim 11 wherein the surfaces of the cutting edge portion are processed by grinding.

15. The process as set forth in claim 11, wherein the notches are provided by wire EDM.

16. The process as set forth in claim 11, wherein the notches are provided by grinding.

17. The process as set forth in claim 11, wherein the notches are provided by punching.

18. The process as set forth in claim 11, wherein distances between at least two pairs of succeeding notches are different.

19. The process as set forth in claim 11, wherein the strip is cold rolled after decarburization annealing.

20. The process as set forth in claim 11, wherein the strip is cold rolled before decarburization annealing.

21. The process as set forth in claim 20, wherein decarburization annealing is performed at the same time as hardening and tempering.

22. The process as set forth in claim 20, wherein, after hardening and tempering, the strip has a lower hardness at a surface thereof than at a center of thereof.

23. A process for producing a nicked cutting rule, comprising:
- subjecting a hot rolled strip to decarburization annealing;
 - cold rolling the strip to a desired shank thickness;
 - subjecting the cold rolled strip to hardening and tempering so that the strip has a desired shank hardness;
 - slitting the hardened and tempered strip to form one or more rules of a desired height;
 - processing an edge of a rule to form a V-shaped cutting edge portion having two surfaces that intersect to form a cutting edge, an unprocessed shank portion having two substantially parallel surfaces separated by the shank thickness, and an intermediate portion between the cutting edge portion and the shank portion having two surfaces connecting the two surfaces of the cutting edge portion and the two surfaces of the shank portion, the intermediate portion being thinner than the shank thickness;
 - edge hardening the cutting edge portion to a desired cutting edge hardness; and
 - providing a plurality of notches extending inwardly from the cutting edge toward the shank portion in the cutting edge portion to define a nicked cutting rule wherein portions of the cutting edge are separated in the direction of length of the rule by the notches,
- wherein the edge of the rule is mechanically processed so that the cutting edge portion and the intermediate portion are sufficiently thin, and the shank thickness, the shank hardness, and the cutting edge hardness are such that the nicked cutting rule is bendable to 150E at a radius of 0.35 mm.

24. The process as set forth in claim 23, wherein at least one of the surfaces of the cutting edge portion and the surfaces of the intermediate portion are processed by shaving.

25. The process as set forth in claim 24, wherein the surfaces of the cutting edge portion are processed by grinding.

26. The process as set forth in claim 23, wherein the surfaces of the cutting edge portion are processed by grinding.

27. The process as set forth in claim 23, wherein the strip is cold rolled after decarburization annealing.

28. The process as set forth in claim 23, wherein the strip is cold rolled before decarburization annealing.

29. The process as set forth in claim 28, wherein decarburization annealing is performed at the same time as hardening and tempering.

30. The process as set forth in claim 23, wherein, after hardening and tempering, the strip has a lower hardness at a surface thereof than at a center of thereof.